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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/821,638	04/08/2004	Christopher D. Roberts	355491-1253	9014

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EXAMINER

CRANE, LAWRENCE E

ART UNIT	PAPER NUMBER
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1623

DATE MAILED: 06/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/821,638

Applicant(s)

ROBERTS ET AL.

Examiner

L. E. Crane

Art Unit

1623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/4/04, 2/14/05</u> | 6) <input type="checkbox"/> Other: ____ |

The Abstract of the Disclosure is objected to because it does not meet the requirement of the MPEP for US application. Correction is required. See MPEP 608.01(b).

Applicant is reminded of the proper content of an Abstract of the Disclosure.

In chemical patent abstracts, compounds or compositions, the general nature of the compound or composition should be given as well as its use, e.g., "The compounds are of the class of alkyl benzene sulfonyl ureas, useful as oral anti-diabetics." Exemplification of a species could be illustrative of members of the class. For processes, the type reaction, reagents and process conditions should be stated, generally illustrated by a single example unless variations are necessary. Complete revision of the content of the abstract is required on a separate sheet.

No claims have been cancelled and no preliminary amendments filed as of the date of the instant Office action. Two Information Disclosure Statements (2 IDSs) filed October 4, 2004 and February 14, 2005 have been received with all cited references and made of record.

Claims **1-12** remain in the case.

The disclosure is objected to because of the following informalities:

Incorporation by reference of essential material by reference to a foreign application or a foreign patent or to a publication inserted in the specification is improper. Applicant is required to amend the disclosure to include the material incorporated by reference. The amendment must be accompanied by an affidavit or declaration executed by applicant, or a practitioner representing applicant, stating that the amendatory material consists of the same material incorporated by reference in the referencing application. *In re Hawkins*, 486 F.2d 569, 179 USPQ 157 (CCPA 1973); *In re Hawkins*, 486 F.2d 579, 179 USPQ 163 (CCAP 1973); *In re Hawkins*, 486 F.2d 577, 179 USPQ 167 (CCPA 1973).

In each of the above cases, the incorporations are of the complete document, and fails to properly point out the particular portions of the US patent(s) being incorporated; see MPEP §608.01(p)(1)(A) noting *In re de Seversky* and in the same paragraph (column 2 of p. 600-769, August 2001 edition) the instruction which reads as follows: "[p]articular attention should be

directed to specific portions of the referenced document wherein the subject matter being incorporated may be found.”

In addition, each of the above incorporations represents a failure to provide specific disclosure of how to make and/or use. Therefore, the above citations of the *Hawkins* decisions continue to apply to all incorporations by reference.

The attempt to incorporate subject matter into this application by reference to patents and to non-patent literature at page 2, lines 8-10, of the disclosure is improper because the incorporated has not been made as required by the *Hawkins* and related decisions noted above.

Appropriate correction is required.

Claims 1-12 is objected to because of the following informalities:

In claim 8 at line 2, the term “bromro” is a misspelling of
-- bromo --.

Appropriate correction is required.

Claim 11 is rejected under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The instant claims have not met the written description standard of *Regents of the University of California v. Eli Lilly* (119F.3d 1559 at 1568; 43 USPQ2d 1398 at 1406 (Fed. Cir 1997)) which MPEP §2163 at page 2100-162, column 1, quotes as follows: “A definition by function alone ‘does not suffice’ to describe a coding sequence ‘because it is only an indication of what the gene does, rather than what it is.’” Applicant relies on the generic functional terminology “a viral infection mediated at least in part by a virus of the *flaviviridae* family of viruses” wherein the disclosure only provides a written description of hepatitis C virus (HCV) but fails to describe any other member of the specified family of viruses or any other viruses which are treated by the instant claimed method.

Claims 11 and 12 are rejected under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one of ordinary skill in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention; the scope is excessive in view of the disclosed exemplifications.

The term “or is at risk of developing said viral infection” in claim 11 is directed to a vast number of viruses only one portion of which has not been described in the instant disclosure in a manner permitting the ordinary practitioner to have the guidance necessary to determine the identity of the infective agents encompassed. Examiner finds at page 43, lines 4-5, only an assertion that compounds disclosed in the specification are effective when administered to treat “hepatitis C virus (HCV),” but no data in support of this assertion has been provided in the “Examples” section.

Claims 1-12 are rejected under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one of ordinary skill in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The fundamental issue here is whether practicing the full scope of the instant invention is possible without undue experimentation. As provided for in *In re Wands* (858 F.2d 731, 737; 8 USPQ 2d 1400, 1404 (Fed Cir. 1988)) the minimum factors to be considered in determination of whether a conclusion of “undue experimentation” is appropriate are as follows:

A. The breadth of the claims is excessive because the compound claims include many terms which lack a completely defined scope and method of treating claims the first of which does not entirely define the infective agent and, courtesy of the term “or is at risk of developing said viral infection,” extends its coverage into the area of infection prevention.

B. The nature of the invention is directed to variously substituted 2'-methyl-7-deazapurine ribosides, 5'-acyl derivatives thereof, and certain 5'-ribonucleotides thereof, pharmaceutical compositions, and a method of treating “a viral infection mediated at least in part by a virus of the *flaviviridae* family of viruses” including an infection by the hepatitis C virus (HCV) by administration of one of said compounds or a pharmaceutical composition containing same.

C. The state of the prior art is well defined and appears to include one anticipatory reference.

D. The level of one or ordinary skill is high with regard to the making of compounds and pharmaceutical compositions thereof as claimed herein as revealed by **Ribapharm '576** (PTO-1449 ref. **B1**). In addition at pages 62-63 of the **B1** reference it is clearly established that compounds of the kind claimed herein have varying degrees of biological activity which suggest possible utility in the treatment of HCV. However, there is no teaching either in the instant disclosure or in the prior art of the efficacy of compounds of the kind claimed herein in the prevention of any disease condition, including HCV infections. And there is no teaching in either the instant disclosure or in the prior art suggesting that extrapolation of efficacy in the inhibition of HCV can be extrapolated to infections caused by any other member of the *flaviviridae* family of viruses. Therefore, the level of skill in the art for either preventing HCV infections or treating infections caused of viruses related to HCV is very low or non-existent based on the data presently of record.

E. The level of predictability in the art parallels the levels of skill in the arts; e.g. it is elevated in the synthetic area, moderate in the HCV treating area , and very low in the prevention of HCV and in the treatment of related viral infections areas.

F. The amount of direction provided by the inventor is high in the area of synthesis, but is entirely absent in the areas of medicinal treatments of existing HCV/*flaviviridae* infections or in the area of preventing HCV infections.

G. The existence of working examples is substantial in the area of chemical synthesis, but is entirely absent in the area of medicinal prevention or treatment of HCV or related viral infections.

H. The quantity of experimentation needed to make or use the invention based on the content of the disclosure is deemed to be excessive because i) the scope of the subject matter being claimed is impossible to accurately determine because of excessively broad and indefinite claim terminology; and ii) there is no data to support the alleged medicinal applications of the claimed compounds to the treatment or prevention of any viral infection. .

Claims 1-6, 9 and 11 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1 at line 6, the term “ and a pharmaceutically acceptable prodrug” renders the claim incorrect because said term does not describe a substituent. Did applicant intend the term to read -- a C₁-C₁₀ acyl group, a monophosphate group, a diphosphate group and a triphosphate group to form a pharmaceutically acceptable prodrug -- or the like? See also claim 5 at lines 5-6.

In claims 1 and 5 at various locations, the terms “alkyl,” “substituted alkyl,” “alkenyl,” “substituted alkenyl,” “alkynyl,” “substituted alkynyl,” “thioalkyl,” “substituted amino,” “acyl,” “carboxyl ester,” “substituted phenyl,” “heteroaryl,” “substituted heteroaryl,” “heterocyclic or substituted heterocyclic group,” “aryl,” and “substituted aryl” each render the noted claimed indefinite for one of the following reasons:

- i) the “substituted” groups are incomplete defined because in each case no particular substituents have been specified in the claim;
- ii) each of the noted groups renders the claims indefinite because none of the noted terms has an upper size limit or size range specified in the claim; and
- iii) terms wherein the term “hetero” is present render the noted claims incomplete because the particular heteroatoms and their locations have not been specified.

Claims 2, 3, 4 and 6 lack proper antecedent basis because there is at present no antecedent basis in the parent claim. See the proposed amendment in the first rejection in this section above which if adopted would render the instant rejection inoperative.

In claim 4 the term “acyl group derived from an amino acid” lacks any upper size limit or other structural details and therefore fails to completely define the metes and bounds of the claimed subject matter.

In claim 9 at line 25, the term “carbaldehyde oxime” is inappropriately under lined and is technically erroneous because the term appears to refer to a separate compound and does not describe a specific substituent. See also the term “boronic acid” at line 26 which also appears to be directed to a separate compound and also fails to particularly define either the chemical identity of the group or how said group is attached to the 7-deazapurine ring. Examiner

suggests that the unequivocal identity of these two compounds may be most conveniently and effectively defined with structural formulas.

In claim 11 at lines 1-2 the term "at least in part by a virus of the *flaviviridae* family of viruses" in the claim preamble suggests that more than one infective agent may be responsible for the infection to be treated without defining same, and therefore renders the instant claim incompletely defined.

The non-statutory double patenting rejection, whether of the obviousness-type or non-obviousness-type, is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent. *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Van Ornam*, 686 F. 2d 937, 214 USPQ 761 (CCPA 1982); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir 1985); and *In re Goodman*, 29 USPQ 2d 2010 (Fed. Cir. 1993).

A timely filed terminal disclaimer in compliance with 37 C.F.R. § 1.321(b) and (c) may be used to overcome an actual or provisional rejection based on a non-statutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 C.F.R. §1.78(d).

Effective January 1, 1994, a registered attorney or agent or record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 C.F.R. §3.73(b).

Claims 1-12 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3, 8-9, 12, 15-27 and 30-33 of copending US Application No. 10/676,956. Although the conflicting claims are not identical, they are not patentably distinct from each other because the method of treatment and the alleged active ingredients (2'-methyl-7-deazapurine nucleosides and various derivatives) are directed to substantially overlapping subject matter.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. §102 that form the basis for the rejections under this section made in this Office action:

“A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.”

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.”

(c) the invention was described in

(1) an application for patent described under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application filed under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a); or ”

Claims 1-12 are rejected under 35 U.S.C. §102(e) as being anticipated by **Ribapharm ‘576** (PTO-1449 ref. B1).

Applicant is referred to the paragraph bridging pages 3 and 4, the paragraph bridging pages 11 and 12, page 31 at lines 3-11 and 21-29, Tables 1 and 2 at pages 62-63, and claim 21-24 at pages 68-69 wherein subject matter has been disclosed which anticipates the instant claimed subject matter.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. §103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. §1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. §103(c) and potential 35 U.S.C. §§102(f) or (g) prior art under 35 U.S.C. §103(a).

Papers related to this application may be submitted to Group 1600 via facsimile transmission (FAX). The transmission of such papers must conform with the notice published

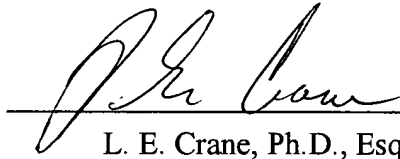
in the Official Gazette (1096 OG 30, November 15, 1989). The telephone number to FAX (unofficially) directly to Examiner's computer is 571-273-0651. The telephone number for sending an Official FAX to the PTO is 703-872-9306.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner L. E. Crane whose telephone number is **571-272-0651**. The examiner can normally be reached between 9:30 AM and 5:00 PM, Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. James O. Wilson, can be reached at **571-272-0661**.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group 1600 receptionist whose telephone number is **571-272-1600**.

LECrane:lec
05/25/2005



L. E. Crane, Ph.D., Esq.
Patent Examiner
Technology Center 1600